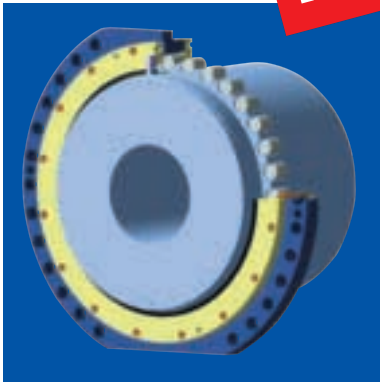


Couplings

New

Barrel coupling TCB-s type



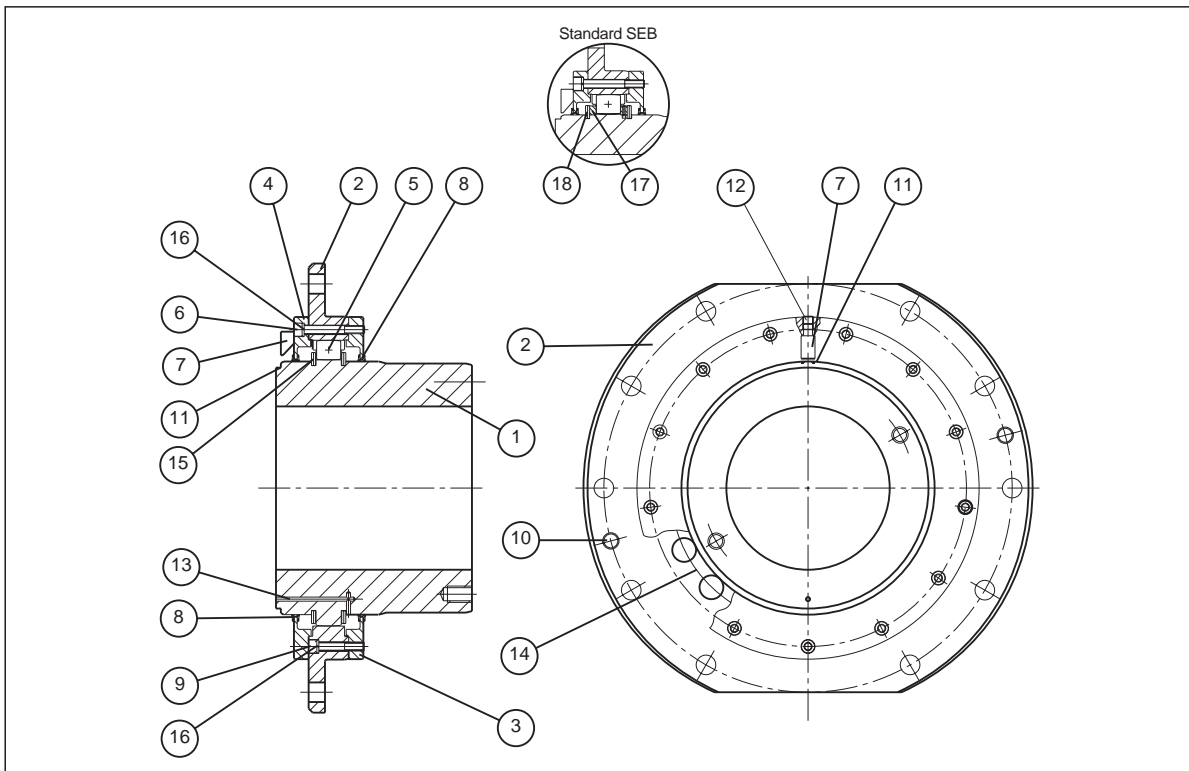
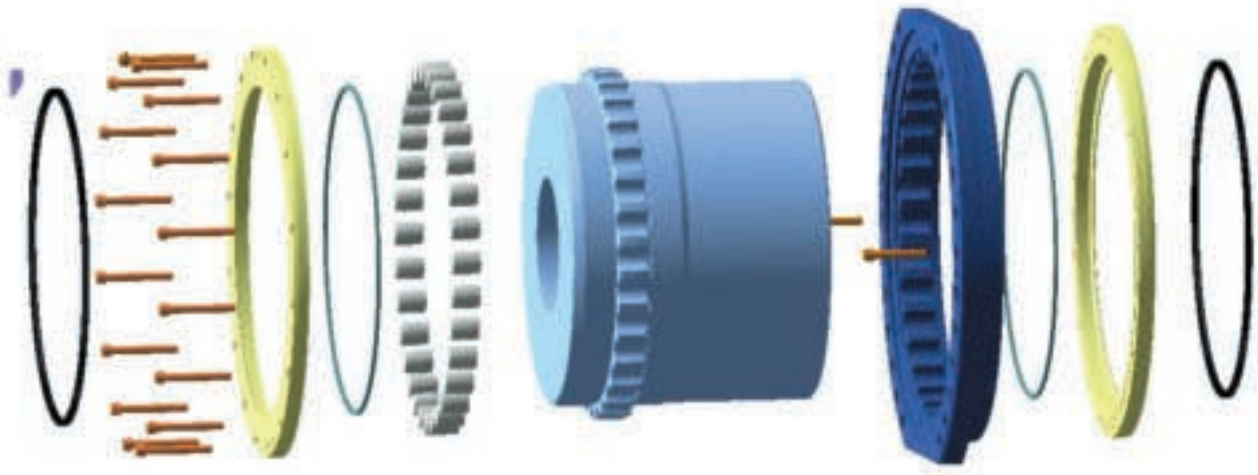


Fig. 1

- | | |
|--|------------------------------------|
| 1. Hub | 10. Threaded holes for disassembly |
| 2. Sleeve | 11. Wear limit grooves |
| 3. Inner cover | 12. Grease connection |
| 4. Outer cover | 13. Grease overflow |
| 5. Barrel | 14. Assembly reference |
| 6. Allen screw | 15. Barrel guide rings |
| 7. Wear and axial adjustment indicator | 16. Grower washer |
| 8. Special seal | 17. SEB barrel guide ring |
| 9. Allen screw | 18. Seeger ring |

New design TCB-s



- New and stronger design.
- Interchangeable with older designs (including TCB).
- Higher load capacity.
- Higher torque capacity.
- Increased allowable shaft diameter.
- Additional sizes in the range.
- Increased life.

Application

JAURE® TCB-s barrel couplings are recommended for installation in crane lifting mechanisms, to connect the cable drum with the gearbox output shaft, as well as in winch conveyors and platform hoists.

When the gearbox output shaft is rigidly connected to the drum in a lifting mechanism, supported between points (Fig. 2), this originates a statically indeterminate case.

This type of mounting requires special care in alignment and levelling, which is difficult to achieve in practice.

Mounting inaccuracies, as well as deformation in structures and wear in moving parts, lead to enormous additional forces, above all in the gearbox output shaft, which as a result of alternative bending loads can lead to breakage due to fatigue and faults in bearings and gear wheels.

In the recommended mounting (Fig. 3) the barrel coupling, which is installed between the gearbox and cable drum, performs the function of an articulated joint, thus making the connection statically determinated and avoiding the occurrence of high bending moments.

Figure 6 shows the mounting of the barrel coupling in a lifting mechanism. Considering the fact that this coupling allows axial displacement, a self-adjusting bearing must be mounted, fixed laterally, at the opposite end of the drum shaft in order to withstand the axial forces that may be generated.

As a special application, the TCB-s barrel coupling can be designed as an articulated joint that withstands axial forces by itself (type TCBA-s, see page 11).

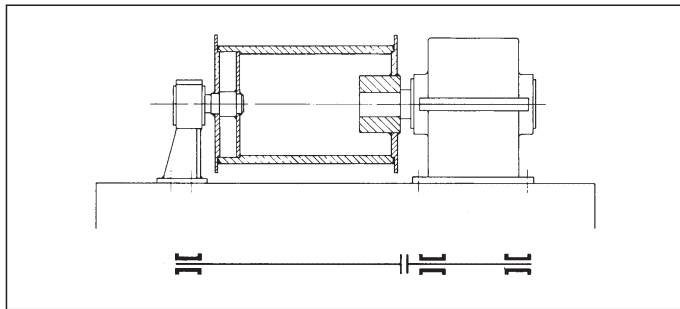


Fig. 2.
Rigid mounting of gearbox-drum connection.
Support at three points.

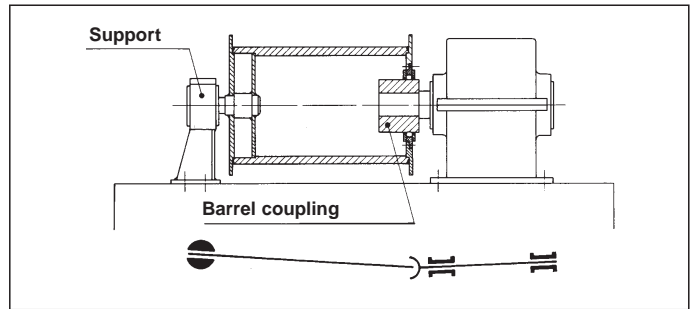


Fig. 3.
Mounting with barrel coupling.

Comparison between hoist gear and barrell couplings

Due to the barrel and gear profile, barrel couplings are subjected to much lower bending stress on the root of the teeth. Therefore, increased safety factor is obtained against bending and peak radial loads.

As barrel couplings have increased contact area, the radial load is better distributed and hence the life of the coupling is increased. See graph below comparing stresses due to the radial load. This radial load is even better distributed with coupling wear.

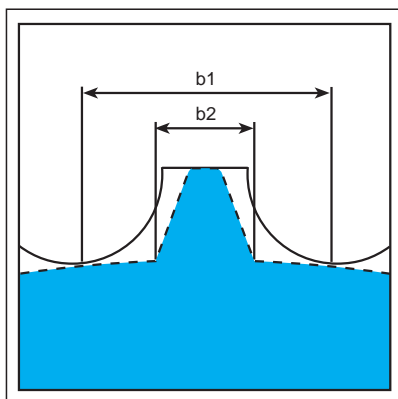


Fig. 4.

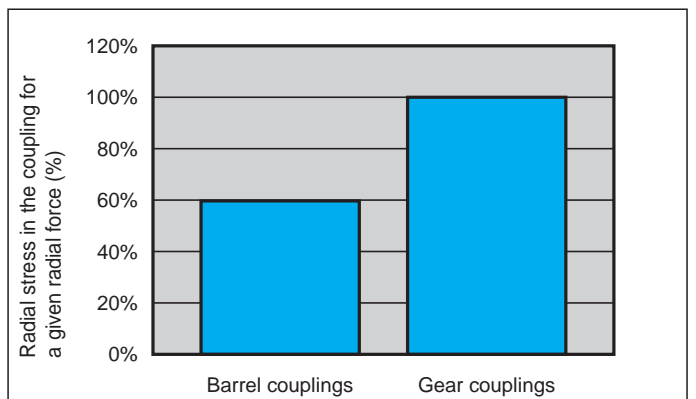


Fig. 5.

Description and characteristics



The barrel coupling consists of a sleeve provided with semicircular tothing around its internal diameter and a hub that is externally toothed in a similar way. A series of cylindrical barrels, of hardened steel, are inserted in the holes formed by this tothing to act as power transmission elements.

Covers with their corresponding special seals serve to assure the perfect tightness of the inner zone, preventing the penetration of dust and guaranteeing the continuity of the necessary lubrication. Two double-lamina elastic rings mounted on the hub, one on each side of the tothing, limit the axial displacement of the barrels.

The convex shape of the barrels and the internal spaces of the tothing allows the oscillation of the hub relative to the sleeve, compensating angular misalignments of $\pm 1^{\circ} 30'$ and an axial displacement that varies between ± 3 mm and ± 8 mm (see Table 4, page 9).

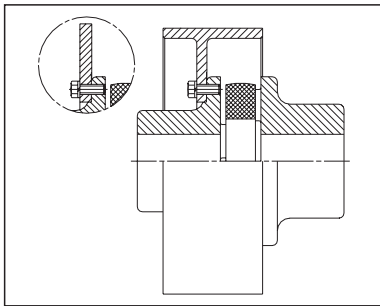
Torque is transmitted to the drum's receiving flange, generally by two diametrically opposed flat driving surfaces, located at the periphery of the coupling flange, and also by means of a series of bolts which, at the same time, serve as connection with the drum.

Other connection systems, such as adjusted spring pins or similar, can also be used following the adequate preparation of the flanges (see TCB-s with special flange on page 11).

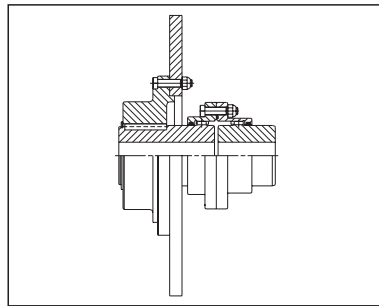
The described design is appropriate for bearing large radial loads, as these are distributed over large barrel support surfaces. In the same way, this design also minimizes the effect of alternative bending of the torque on the tothing, the latter being robust thanks to its low height and large bottom section. In addition to this, due to the effect of a "crush polishing" of the hardened barrel on the tooth profile, its wear resistance is appreciably improved.

An indicator located on the outer cover (Pos. 7, Fig. 1), which moves relative to the marks provided on the hub as a function of wear, permits control of internal wear of the tothing without the need to disassemble any part of the coupling. The same indicator also serves to control the axial position of the sleeve relative to the hub.

Jauflex Type



MT Type



Lamidisc® Type

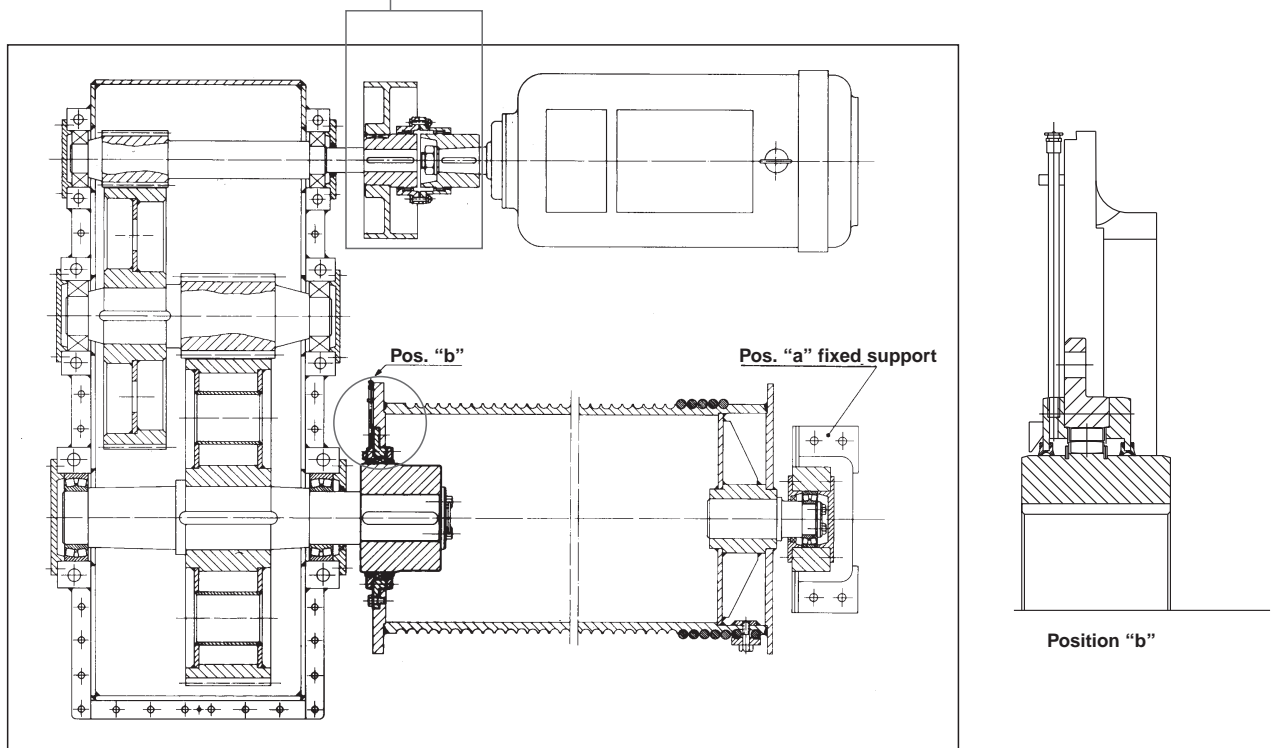
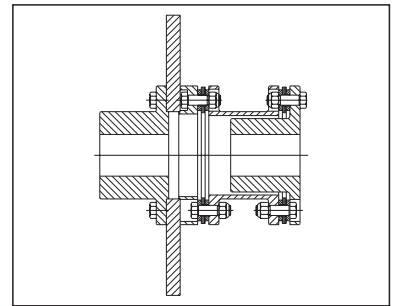


Fig. 6.
Mounting of the barrel coupling in a lifting mechanism.

Selection of coupling size



The required coupling size depends on:

1. Nominal transmission torque T.
2. Radial load F to be withstood by the coupling.
3. Geometric check of the gearbox shaft.

1. Nominal transmission torque T (Nm)

a) Based on installed power P_i (Kw)

$$T = 9550 \cdot \frac{P_i}{n} \cdot K_1 \quad (\text{Eq. 1})$$

where:
 P_i (Kw) = max. installed power of the motor
 n (rpm) = drum turning speed
 K_1 = operating factor (see Table 1)

Table 1. Operating factor K_1 , according to cable transmission group.

Group DIN 15020	1B m	1A m	2 m	3 m	4 m	5 m
Group FEM (1970)	IB	IA	II	III	IV	V
Group FEM (1987)						
Group BS 466 (1984)	M1,M2,M3	M4	M5	M6	M7	M8
Operating factor K_1	1,12	1,25	1,40	1,60	1,80	2

b) Based on consumed power P_c (Kw)

$$P_c = \frac{F_p \cdot V_r}{60.000} \quad \text{Eq. (2)}$$

$$T = \frac{P_c \cdot 9550}{n} \cdot K_1 \quad \text{Eq. (3) or } T = F_p \cdot \frac{D}{2} \cdot K_1 \quad \text{Eq. (4)}$$

where:
 P_c (Kw) = max. power consumed by the motor
 F_p (N) = drum static pull, including cable and pulley efficiency in Newtons (see Equation 6)
 V_r (m/min) = drum cable lifting rate
 n (rpm) = drum turning speed
 D (m) = drum pitch diameter
 K_1 = operating factor (see Table 1)

Having obtained the transmission torque T (Nm) to be withstood by the coupling, by means of the installed or consumed power, this must be less than the coupling's nominal torque T_N (Nm), shown in Table 4.

After this, it is necessary to confirm the selection on the basis of the radial load to be withstood.

2. Radial load F to be withstood by the coupling

Radial load is understood to be the fraction of the load that must be withstood by the coupling due to the pull of the load and the hoisting tackle. As the coupling constitutes one of the drum's two supports, it must withstand a fraction of the total load.

Prior to calculating the radial load F, it is necessary to obtain the static pull in the drum F_p :

Determination of static pull in the drum F_p :

The static pull in the drum is given by:

$$F_p = \frac{Q+G}{i_r} \quad \text{Eq (5)}$$

This static pull is modified if cable and pulley efficiency is taken into account according to Table 2.

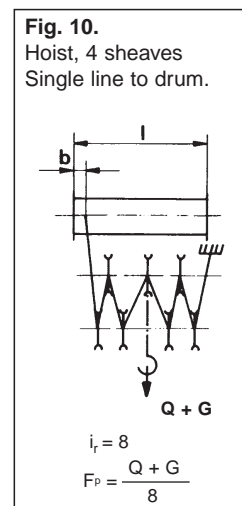
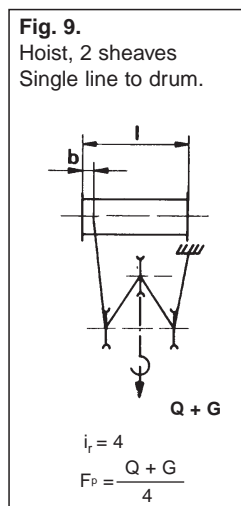
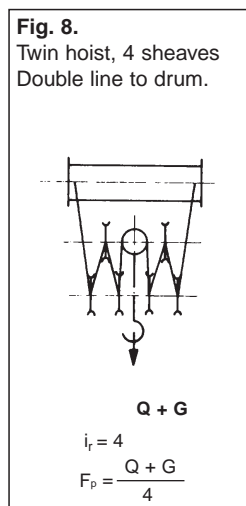
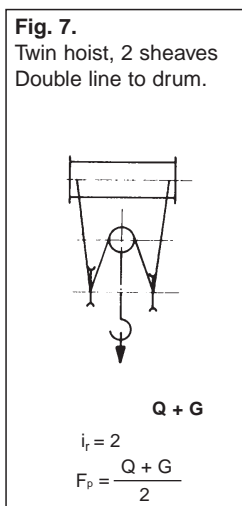
$$F_p = \frac{Q+G}{i_r \cdot K_2} \quad \text{Eq (6)}$$

where:
 Q (N) = max. load on hook
 G (N) = weight of hoist tackle and cables
 K_2 = operating factor of drum and hoist tackle efficiency (see Table 2)
 i_r = transmission ratio = $\frac{\text{Total number of lines}}{\text{Number of lines leaving the drum}}$

Table 2. Operating factor K_2 according to drum and tackle efficiency

Hoist tackle reduction i	2	3	4	5	6	7	8
K_2 with bronze bearings	0,92	0,90	0,88	0,86	0,84	0,83	0,81
K_2 with ball bearings	0,97	0,96	0,95	0,94	0,93	0,92	0,91

Figures 7 to 10 (on next page) show different examples of hoist tackle configurations.



Calculation of radial load F .

Having obtained the static pull, it is necessary to calculate the radial load F (N) by means of the following equation:

For examples corresponding to Fig. 7 and Fig. 8 (systems with double line to drum):

$$F = \frac{F_p}{2} + \frac{w}{2} \quad \text{Eq. (7)}$$

For examples corresponding to Fig. 9 and Fig. 10 (systems with single line to drum):

$$F = \left[F_p \left(1 - \frac{b}{l} \right) \right] + \frac{w}{2} \quad \text{Eq. (8)}$$

where:

F_p (N) = Static pull of drum, including cable and pulley efficiency

l (mm) = Distance between drum supports

b (mm) = Shortest possible distance from cable in drum to the geometric centre axis of barrels in the coupling.

w (N) = Own weight of drum with cables and parts of the coupling connected to it.

Having obtained the radial load F, it is necessary to check that the admissible radial load F_r of the selected coupling (see Table 4) is greater than F.

Option of corrected radial load F_A .

In the event that the transmission torque T is lower than the nominal torque of the preselected coupling T_N , but the radial load F to be withstood by the coupling is greater than the admissible catalogue load F_r for this size of coupling, it is then possible to make a final verification, to check whether the coupling can withstand a radial load F_A which is higher than the coupling's admissible load F_r indicated in the catalogue:

$$F_A = F_r + \left[(T_N - T) \cdot C \right] \quad C = \text{Compensation factor, variable according to coupling size (see Table 3).}$$

Table 3. Value of C according to coupling size.

Coupling size	25	50	75	100	130	160	200	300	400	500	600	1.000	1.500	2.100	2.600	3.400	4.200	6.200
C Factor	10,3	9	8	7,2	6,4	5,8	5,2	4,8	4,1	3,7	3,4	3,0	2,6	2,5	2,4	2,2	2,0	1,8

Compensation is only applicable to the radial load, not to the turn torque.

3. Geometric check of gearbox shaft

A check must also be made that the diameter of the gearbox shaft is smaller than the maximum admissible diameter (d_{max}) for each coupling size, according to Table 4. These values are valid for shafts with keyways according to DIN 6885/1. Additionally, a check must be made of the pressure in the keyways.

For other types of fixing, such as spline shafts according to DIN 5480, mounting with interference, etc., please consult our Technical Department.

Example:

$Q = 300000 \text{ N}$ (useful load to be lifted)	Layout (Fig. 9)
$G = 10000 \text{ N}$ (hoist weight)	$i_r = 4$ (Hoist reduction)
$w = 14000 \text{ N}$ (weight of drum and cables)	$K_1 = 1,6$ (Group III)
$P_i = 30 \text{ Kw}$ (motor power)	$K_2 = 0,95$ (Drum and hoist efficiency)
$V_r = 5 \text{ m/min}$ (hook lifting rate)	$b = 400 \text{ mm}$ (distance between cable and coupling)
$n = 8 \text{ rpm}$ (drum turning rate)	$l = 1200 \text{ mm}$ (drum length)
$D = 800 \text{ mm}$ (drum diameter)	$d = 200 \text{ mm}$ (gearbox output shaft, with key)

1. Calculation of nominal transmission torque T (Nm) :

a) Based on installed power P_i (Kw), according to Equation 1:

$$T = \frac{9550 \cdot P_i}{n} \cdot K_1 = \frac{9550 \cdot 30}{8} \cdot 1,60 = 57300 \text{ Nm}$$

b) Based on consumed power P_c (Kw), according to Equation 6:

$$F_p = \frac{Q + G}{i_r \cdot K_2} = \frac{300000 + 10000}{4 \cdot 0,95} = 81600 \text{ N}$$

The consumed power P_c is given by Equation 2:

$$P_c = \frac{F_p \cdot V_r}{60000} = \frac{81600 \cdot 20}{60000} = 27,2 \text{ Kw}$$

Thus, the transmission torque T is:

$$T = \frac{9550 \cdot P_c}{n} \cdot K_1 = \frac{27,2 \cdot 9550}{8} \cdot 1,6 = 51950 \text{ Nm}$$

Preselected size: TCB-s – 500, $T_N = 70000 \text{ Nm}$.

Higher than the torque calculated by means of installed power: 57300 Nm
and higher than the torque calculated by means of consumed power: 51950 Nm.

CONVERSION TABLE

1 mm	= 0,0394 inch
1 inch	= 25,4 mm
1 m	= 39,4 inch = 3.283 ft
1 Kg	= 2,2046 lbs (weight)
1 lb (wt)	= 0,4536 Kg
1 N	= 0,2248 lbs (force)
1 lb (f)	= 4,4482 N
1 Nm	= 0,7376 lb-ft
1 lb-ft	= 1,3558 Nm
1 Kgm	= 23,76 lb-ft
1 lb-ft	= 0,1382 Kgm
1 KW	= 1,34 HP
1 HP	= 0,746 kw

2. Calculation of radial load F to be withstood by the coupling:

Using Equation 8:

$$F = \left[F_p \left(1 - \frac{b}{l} \right) \right] + \frac{w}{2} = \left[81600 \left(1 - \frac{400}{1.200} \right) \right] + \frac{14000}{2} = 61400 \text{ N}$$

The preselected size TCB-s – 500 withstands a radial load $F_r = 115000 \text{ N}$, (see Table 4) higher than that obtained of 61400 N.

Option of corrected radial load F_A :

Let us suppose that the radial load F_r turns out to be 130000 N. In this case, in a preliminary selection, this load is greater than that featured in the catalogue for the TCB-s – 500. It is possible to make a second check by means of the corrected radial load F_A , prior to selecting a larger coupling size, according to Equation 9:

$$F_A = F_r + \left[(T_N - T) \cdot C \right] = 115000 + \left[(70000 - 51950) \cdot 3,7 \right] = 181785 \text{ N}$$

The coupling could withstand a radial load F_A of up to 181785 N, for the transmission data considered. As $181785 \text{ N} > 130000 \text{ N}$, the selection of TCB-s – 500 would be correct.

3. Geometric check of gearbox shaft :

According to Table 4, $d_{\max} = 215 \text{ mm} > 200 \text{ mm}$ (existing shaft diameter).

Furthermore, a check should be made that the specific pressure in the keyway is acceptable.

Dimensions and parameters



Standard TCB-s and TCB-s SEB

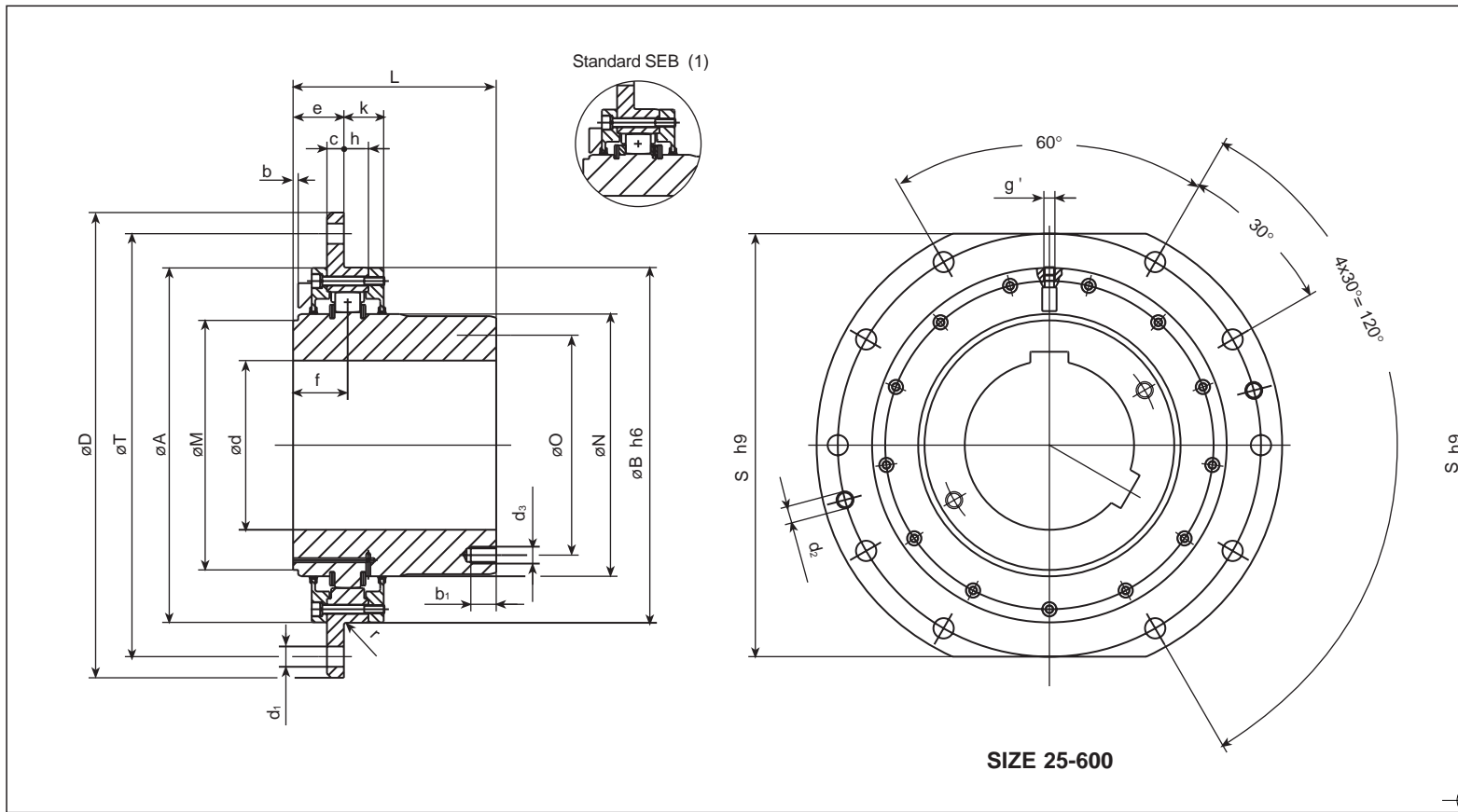
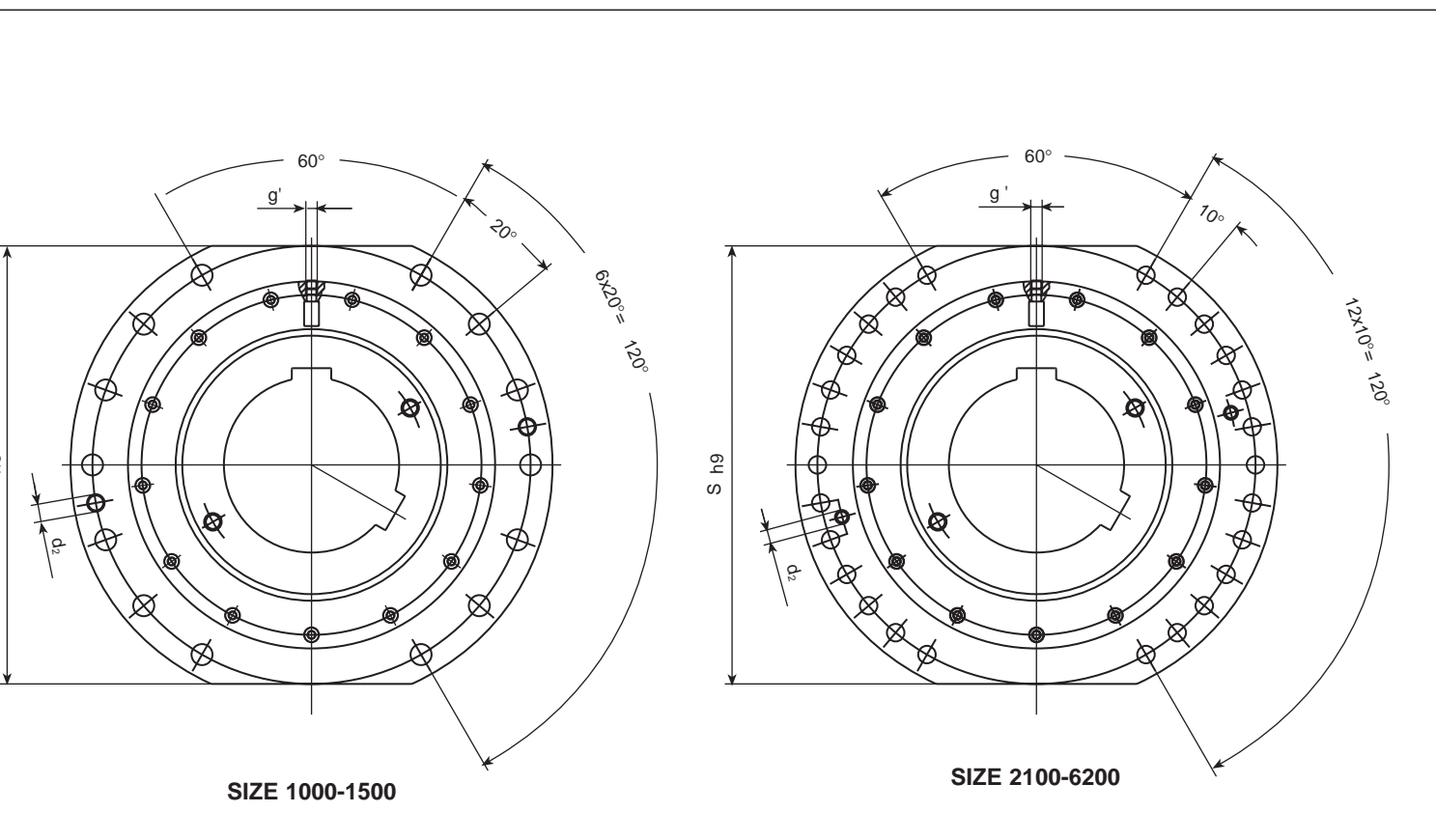


Table 4. Technical data and general dimensions of the standard TCB-s and TCB-s SEB

TCB-s TYPE SIZE	Selection standard SEB (1)	(2) T_N (Nm)	F_r admissible radial load (N)	D I M E N S I O N S									
				(3) d max.	d min.	D	L	L min.	M	N	A	B	S
25	-	4.500	14.500	65	38	250	95	85	90	95	159	160	220
50	-	6.000	16.500	75	48	280	100	85	105	110	179	180	250
75	-	7.500	18.500	85	58	320	110	95	120	125	199	200	280
100	-	9.000	20.000	95	58	340	125	95	135	140	219	220	300
130	-	15.500	31.000	110	78	360	130	95	150	160	239	240	320
160	-	19.500	35.000	125	78	380	145	95	170	180	259	260	340
200	SG 130	24.000	38.500	135	98	400	170	95	190	200	279	280	360
300	-	28.000	42.000	150	98	420	175	95	210	220	309	310	380
400	SG 140	50.000	70.000	185	98	450	185	120	250	260	339	340	400
500	-	70.000	115.000	215	98	510	220	125	290	300	399	400	460
600	SG 185	110.000	120.000	235	118	550	240	125	302	312	419	420	500
1000	SG 200	170.000	140.000	250	138	580	260	130	341	351	449	450	530
1500	SG 240	230.000	170.000	295	158	650	315	140	405	415	529	530	580
2100	-	310.000	250.000	305	168	665	330	145	418	428	542	545	590
2600	SG 270	390.000	300.000	315	168	680	350	145	432	443	559	560	600
3400	SG 315	500.000	340.000	340	198	710	380	165	455	475	599	600	640
4200	SG 355	625.000	380.000	385	228	780	410	165	524	539	669	670	700
6200	SG 400	745.000	450.000	430	258	850	450	165	582	603	729	730	760

(1) Option with standard SEB 666212 January 91

(2) These torques have been calculated for the coupling, not taking account the connections between shaft and hub. In each case this consideration should be checked. During start-up, couplings can admit 150% of nominal torque capacity.



D N S (mm)													Maximum axial displac. (+/-)	(4) Weight Kg.
e	f	c	r	h	k	T	d ₁	d ₂	O	b	d ₃	b ₁		
42	44	12	2,5	16	31	220	15	M 12	-	5	-	-	3	12
42	44	12	2,5	16	31	250	15	M 12	-	5	-	-	3	19
45	46	15	2,5	17	32	280	19	M 16	-	5	-	-	4	23
45	46	15	2,5	17	32	300	19	M 16	-	5	-	-	4	27
45	47	15	2,5	19	34	320	19	M 16	-	5	-	-	4	33
45	47	15	2,5	19	34	340	19	M 16	-	5	-	-	4	42
45	47	15	2,5	19	34	360	19	M 16	165	4	M 16	24	4	54
45	47	15	2,5	19	34	380	19	M 16	180	5	M 16	24	4	70
60	61	20	2,5	22	40	400	24	M 20	215	9	M 20	30	4	95
60	65	20	2,5	30	48	460	24	M 20	255	7	M 20	30	6	146
60	65	20	2,5	30	48	500	24	M 20	260	7	M 20	30	6	162
60	65	20	2,5	30	48	530	24	M 20	290	7	M 24	36	6	195
65	67,5	25	2,5	30	48	600	24	M 20	350	7	M 24	36	6	305
65	74	25	4	43	61	615	24	M 20	365	7	M 30	45	6	330
65	74	25	4	43	61	630	24	M 20	375	7	M 30	45	6	360
81	87.5	35	4	40	64	660	28	M 20	395	10	M 30	45	8	408
81	87.5	35	4	40	64	730	28	M 20	445	10	M 30	45	8	580
81	87.5	35	4	40	64	800	28	M 20	500	10	M 30	45	8	715

(3) Maximum bore diameters for execution with keyways according to DIN-6885/1. For other types of connections consult our Technical Department.

(4) Aproximate weight.

g' = lubrication point

Up to size 160: R.1/8" Gaz, size 200 and over: R.1/4" Gaz.

Dimensions and parameters



TCBN type, with splined shaft for quick mounting and dismounting

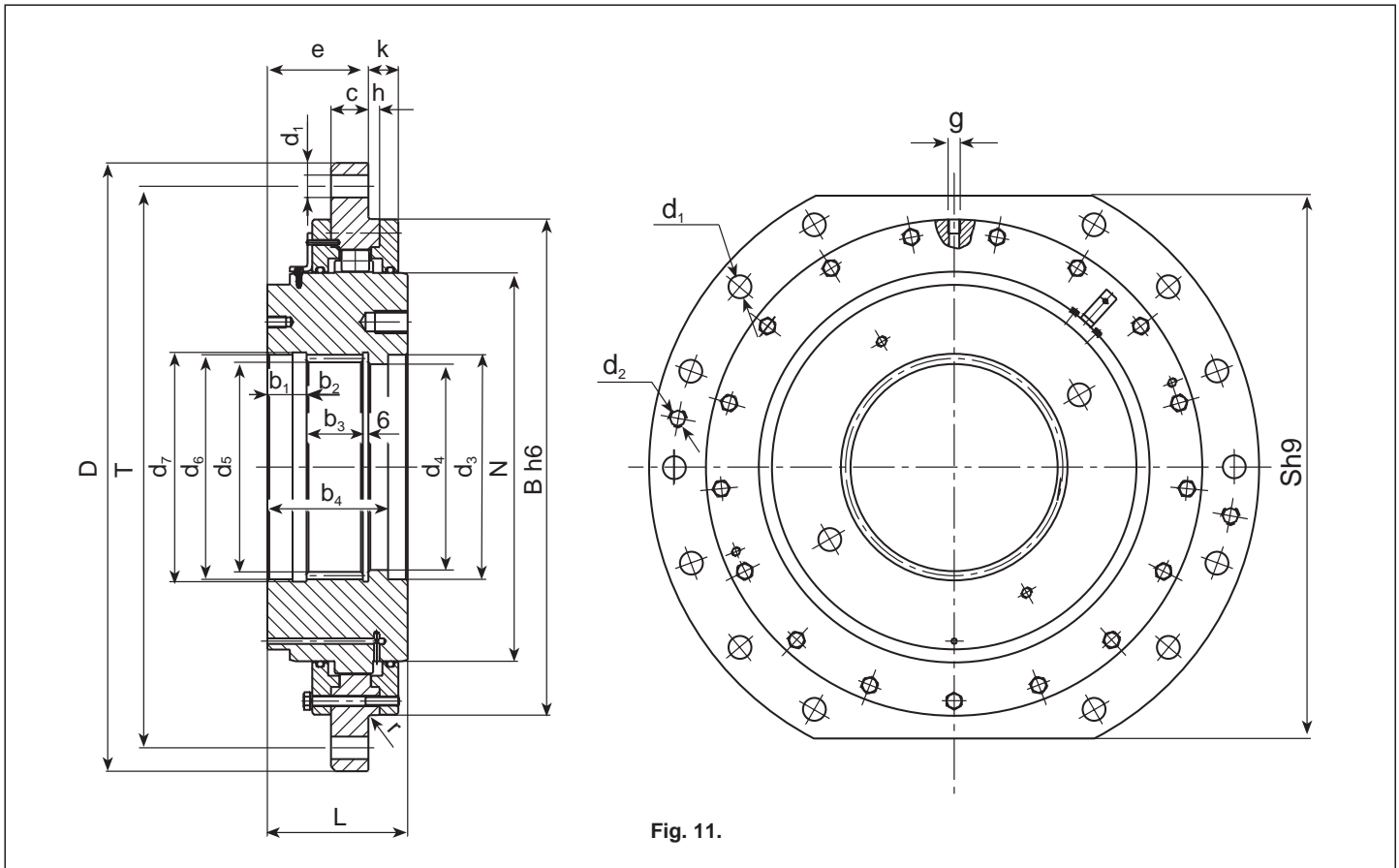


Fig. 11.

Table 5. Technical data and general dimensions of the TCBN

TCBN type size	DIMENSIONS (mm)														Wt Kg	J Kgm ²	Toothing m x z DIN 5480
	L	e	c	h	k	b ₁	b ₂	b ₃	b ₄	d ₃	d ₄ (H7)	d ₅ (H11)	d ₆ (K6)	d ₇			
200	125	90	32	10	25	39	15	32	110	101	85	90	100	105	53	0,81	5 x 18
300	120	85	32	10	25	39	15	32	110	121	105	110	120	125	58	1,02	5 x 22
400	130	92	32	10	28	40	15	40	121	141	125	130	140	145	74	1,5	5 x 26
500	130	92	32	10	30	40	15	40	121	166	150	154	170	175	98	2,8	8 x 20
600	129	89	32	10	30	38	15	42	121	166	150	154	170	175	112	3,3	8 x 20
1.000	131	91	32	10	30	26	15	50	116	200	180	184	200	205	128	4,3	8 x 24
1.500	150	108	40	12	32	27	15	60	129	240	220	224	240	245	195	9	8 x 28
2.600	162	111	40	19	39	26	15	70	138	280	260	264	280	285	219	11	8 x 34
3.400	162	109	50	19	41	26	15	70	138	280	260	264	280	285	265	15	8 x 34
4.200	190	137	50	19	41	33	15	80	161	350	320	324	340	345	304	24	8 x 41
6.200	190	137	50	19	41	33	15	80	161	350	320	324	340	345	480	38	8 x 41

The measures and values not indicated in this table are equal to those given for the standard TCB-s coupling (Page 8).

Consult Jaure for the machining of the shaft.

Cable drum flange, coupling side

The machining of the cable drum flange will be made according to Figures in Table 4.

The rest of dimensions according to Table 6.

The quality of the flange material will be St 52 - 3.

TCB-s type	DIMENSIONS (mm)								d ₂ thread
	D	T	S (F8)	a min.	d ₁	d ₃ (F8)	p	n min.	
25	250	220	220	25	15	160	3	10	M12
50	280	250	250	25	15	180	3	10	M12
75	320	280	280	25	19	200	3	10	M16
100	340	300	300	25	19	220	3	10	M16
130	360	320	320	25	19	240	3	10	M16
160	380	340	340	25	19	260	3	10	M16
200	400	360	360	25	19	280	3	10	M16
300	420	380	380	25	19	310	3	10	M16
400	450	400	400	30	24	340	3	10	M20
500	510	460	460	30	24	400	3	10	M20
600	550	500	500	30	24	420	3	10	M20
1.000	580	530	530	40	24	450	3	20	M20
1.500	650	600	580	50	24	530	3	25	M20
2.100	665	615	590	50	24	545	5	25	M20
2.600	680	630	600	50	24	560	5	25	M20
3.400	710	660	640	60	28	600	5	35	M24
4.200	780	730	700	60	28	670	5	35	M24
6.200	850	800	760	60	28	730	5	35	M24

Table 6.

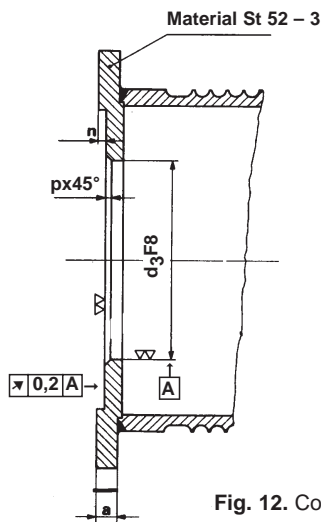
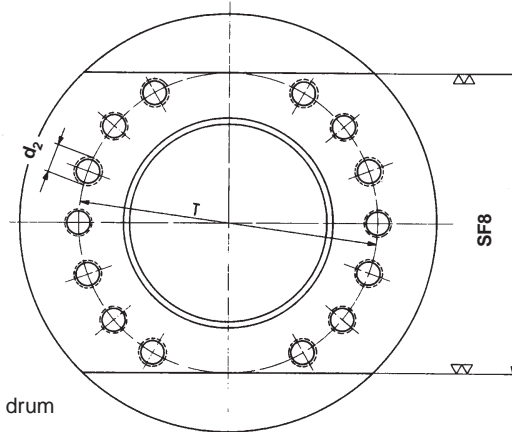
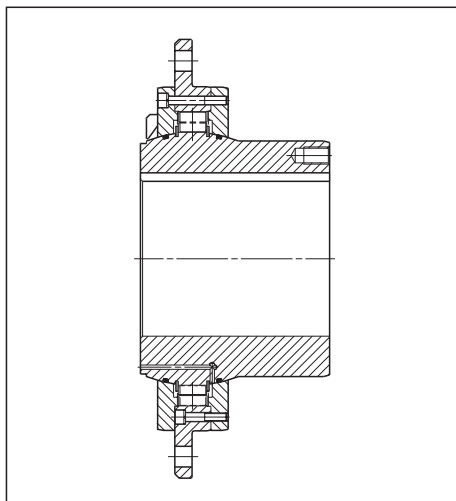


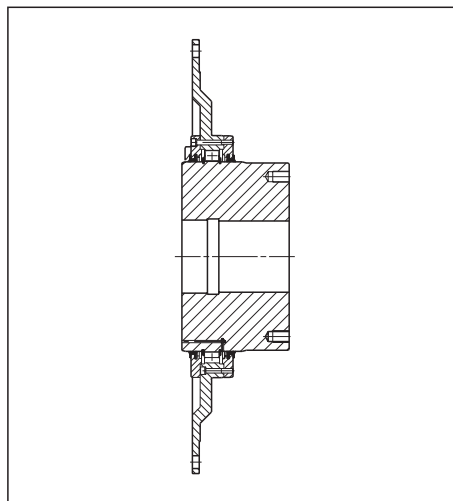
Fig. 12. Coupling side flange for cable drum



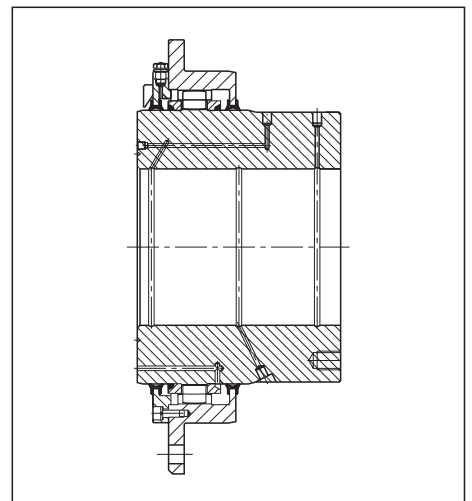
Alternative constructions



Type TCBA-s
with axial limitation



TCB-s
with special flange



Type TCB-s - SIDMAR
(standard SIDMAR BR3, 01-10-89 Rev. D)

- The TCB-s barrel coupling is supplied fully assembled. The lubricant with which the coupling is supplied serves to facilitate the assembly of the different components, but a suitable lubricant is necessary for the correct functioning of the coupling.
- Axial forces, as a consequence of the component resulting from the inclination of cables, must be absorbed by the drum support bearing on the side opposite the coupling (Pos. a, Fig. 6) and the cart structure. The deformations that may exist during operation at full load must not be greater than the maximum axial displacement indicated in Table 4.
- If the coupling is supplied without machining, it will be necessary to dismount it in order to carry out the corresponding machining. Once machined, during mounting the hub and sleeve must be connected lining up the mark on the hub with that on the sleeve (see mounting reference Pos. 14, Fig. 1 on page 2).
- The screws for fixing the coupling to the drum and those for the covers must be at least of quality 8.8. For the corresponding grip torque values, see Table 7.

Table 7. Tightening torques

Quality	Thread	M8	M10	M12	M16	M20	M24
8.8	Max. tightening torque (Nm)	26	51	89	215	420	725
10.9	Max. tightening torque (Nm)	37	71	132	308	625	1075

1. Assembly of coupling on gearbox shaft

a) By means of keyways:

- Both the shaft and the interior of the hub must be free from soiling.
- To facilitate assembly and to avoid damage to seals, the complete coupling may be heated in an oil bath to a maximum temperature of 80° C.
- Set the hub on the shaft, with care.
- The sleeve must allow axial displacement.

b) Joint by means of interference, without keyway:

- It is necessary to dismount previously the outer cover, sleeve, guide ring and barrels.
- Prior to the assembly of the coupling, its component parts must be carefully cleaned.
- Position the outer cover, with its seal, previously on the shaft.
- If it is envisaged that there will not be space to mount the fixing screws, these may be previously introduced in their housings. Check the distance Y (Fig. 13); for this purpose, see Table 8.

Table 8. Y distance

Coupling size	25-50	75-300	400-1.000	1.500	2.100-6.200
Min. Y (mm)	50	55	70	80	90

- Heat the coupling hub progressively to the required temperature (depending on the interference). By way of guidance, a temperature of 200 – 250 °C is usually sufficient. This temperature should not be exceeded, even locally, taking care to prevent contact between the cover seals and the hot hub, as the seals may be damaged by the high temperature.
- Set the hub on the shaft until it reaches its designated position. The hub must not come into contact with any seal as this could be damaged due to the high temperature. Continue with the assembly after allowing the hub to cool.
- Mount the sleeve on the hub respecting the mounting mark Pos. 14, according to Fig. 1.
- Introduce the barrels, fixing them by means of the guide ring.
- Mount the cover, aligning the indicator with the respective mark on the hub.
- The sleeve must allow axial displacement.

In the case of dismounting by oil injection pressure, consult our Technical Department.

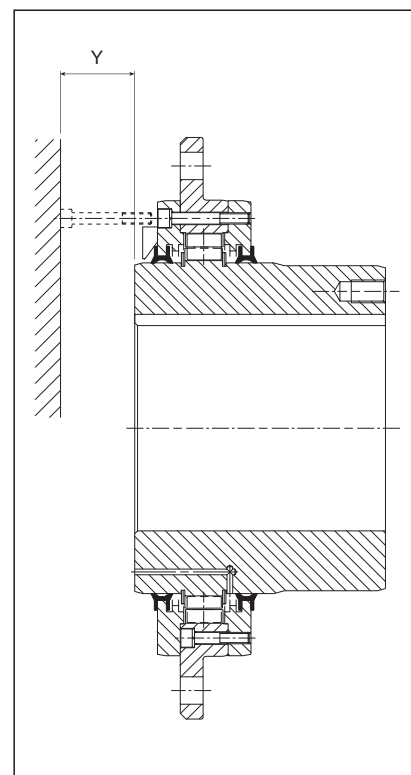


Fig. 13. Distance necessary for screw removal.

2. Axial trimming of coupling. Angular alignment of drum

Prior to drilling the holes for the fastening of support Pos. a, Fig. 6, axially fix the position of the drum with respect to the coupling's hub. To this end, axially line up the indicator fixed on the cover with the groove on the hub, according to Fig. 14. **During assembly, axial displacement must not exceed 10% of the maximum nominal value admitted by the coupling, according to Table 4.**

After this, the alignment of the rolling drum with respect to the gearbox output shaft will be made, checking the distance "X" by measurement with a ruler, positioning it at four points at 90°, according to Fig. 15. The difference between the maximum and minimum values of "X" must be less than values shown in Table 9.

Table 9. Difference in distance X (mm)

Drum size (ø)	Distance between max. and min. X
< 1 m.	< 0,5 mm
> 1 m.	< 0,8 mm

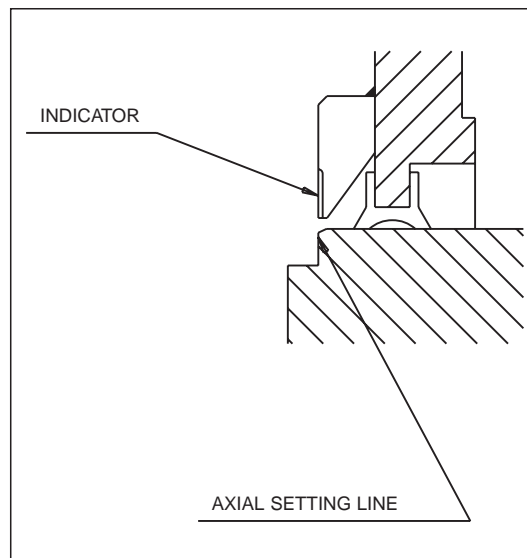


Fig. 14. Axial positioning.

3. Greasing

Once the assembly is finished, ensure that the coupling is greased before coming into service. Use must be made of a lubricant with the following characteristics, for temperatures between -20 °C and +80 °C (consult Jaure for temperatures outside this range):

Reference	Manufacturer
MolubAlloy 777-1	CASTROL
Klubberlub BE 41-601	KLUBER
Molydual Coupling Grease	MOLYDUVAL
Mobilgrease XTC	MOBIL
Albida Grease HDX-2	SHELL
Coupling Grease KP0/1 K-30	TEXACO
Atlanta	VERKOL

If above mentioned greases are not available, the grease to be used must comply with the following properties:

- Consistency according to NLGI: 1-2
- Viscosity of base oil: Greater than 350 Cst at 40 °C, greater than 35 Cst at 100 °C.
- Heavy additives (molybdenum disulphide): MoS2 between 5% and 8%.
- Drop point: Higher than 150 °C.
- EP additives: Required.
- Oxidation inhibitors: Required.

Lubrication will be carried out using a prolongation of the greasing tube inserted in the corresponding orifice of the outer cover. Grease must be inserted until it comes out of the overflow aperture, situated at the opposite end of the hub, Pos. 13, Fig. 1.

For the quantities of grease to be used in each size, see Table 10:

Table 10. Quantity of grease in TCB-s and TCB-s SEB

TYPE		25	50	75	100	130	160	200	300	400	500	600	1000	1500	2100	2600	3400	4200	6200
TCB-s	Quantity of Grease (Kg)	0,08	0,1	0,12	0,14	0,15	0,17	0,3	0,23	0,34	0,52	0,58	0,66	0,81	1,2	1,24	1,62	1,85	2,12
TCB-s SEB								0,23		0,24	0,34	0,39	0,46	0,54		0,84	1,11	1,27	1,48

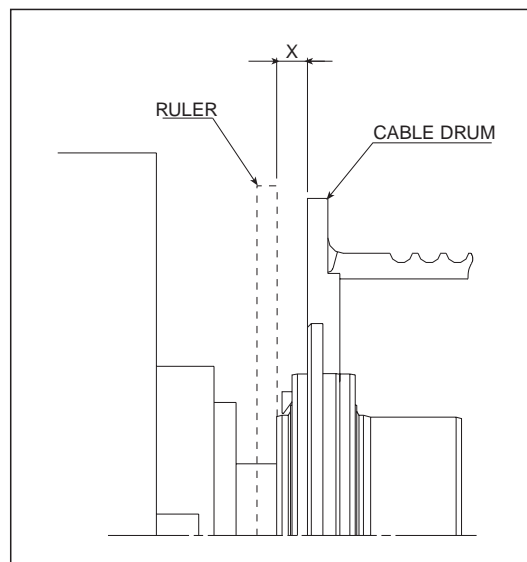


Fig. 15. Coupling alignment.

4. Maintenance

Greasing: The grease will be completely renewed each 2000 or 3000 hours of operation, depending on service conditions, or at least once a year. To this end, introduce new grease through the input orifice, expelling the used grease through the overflow outlet.

Periodic inspections, check the following at least once a year:

- a) The tightening torque of screws must be as indicated. If any screw is observed to be in a bad state, it is recommended to replace all the screws.
- b) Internal wear of the toothing. Wear may be checked by means of the position of the indicator mark over the marks on the hub (Fig. 16). The relative position of the two marks reveals the wear of the flanks.
The coupling is originally supplied with the indicator centred on the hub marks (Pos. a).
When the limit is reached (Pos. b) it is necessary to replace the complete coupling.

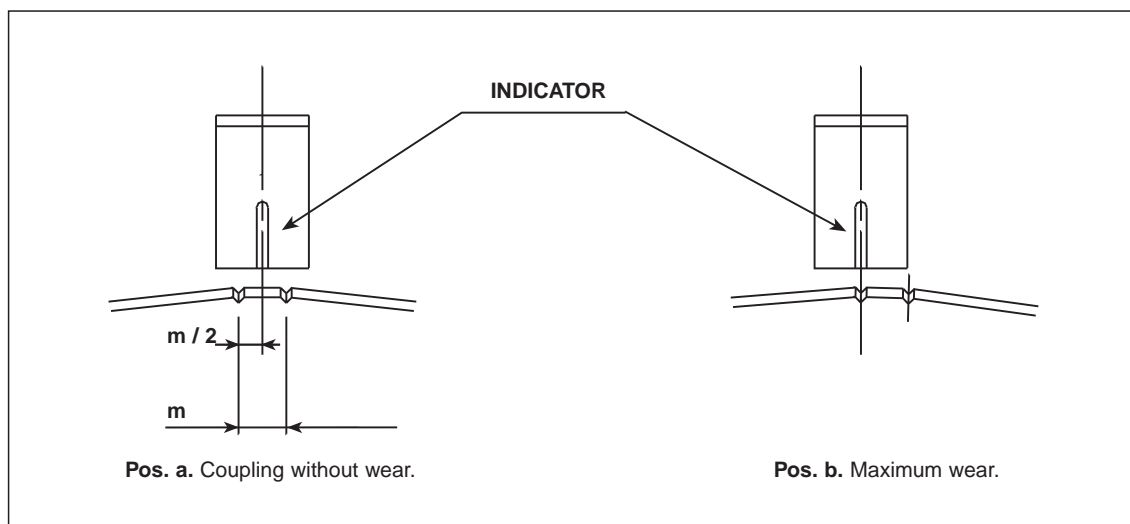


Fig. 16. Wear of the coupling.

Table 11 shows the maximum wear values permissible for reversible load applications typical in the translation of a container crane. For single load direction applications, the amplitude between marks must be multiplied by two. Except where expressly requested, the marks supplied are those to be used in reversible applications.

Table 11. Control of coupling wear.

Coupling size	25	50	75	100	130	160	200	300	400	500	600	1.000	1.500	2.100	2.600	3.400	4.200	6.200
Max. wear m/2 (mm)	4	4	4	4	6	6	6	6	6	8	8	8	8	8	8	8	8	8

- c) Axial setting: Check the distance "X" according to Fig. 15. If this distance is greater than 10% of that shown in Table 4, the position of seating of the support-bearing must be reset.
- d) Control of seals: Replace the seals if any deterioration is observed in their lips.

Applications



1

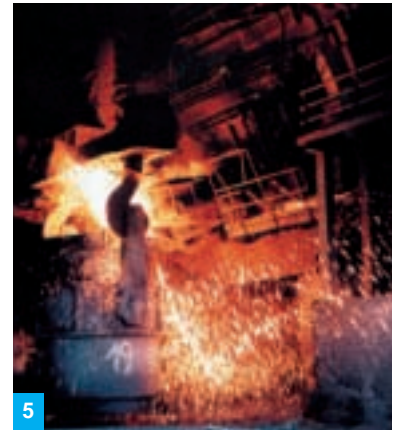
2

3

- 1 Hoisting mechanism in a steel picking line
- 2 Barrel and gear coupling with brake disc
- 3 Barrel coupling TCB-s-2600 on a container crane
- 4 Set of TCB-s couplings
- 5 Travelling crane in steel plant



4



5



6



7



8



9

- 6 Harbour cranes for ship loading
- 7 Rubber tyred Gantry crane
- 8 Travelling crane manipulating scrap
- 9 Different cranes application: Bulk handling, Goliath Gantry, container cranes

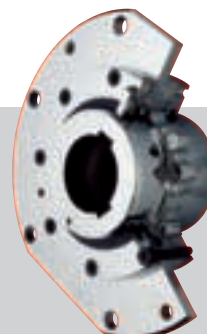
JAURE, S.A. Couplings and transmission elements.



■ MT crowned tooth gear coupling.



■ LAMIDISC® all steel disc coupling.



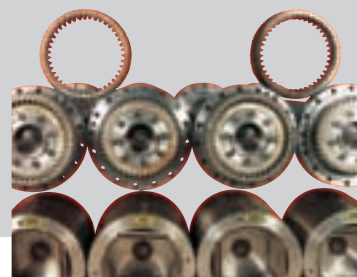
■ Barrel coupling TCB-s®.



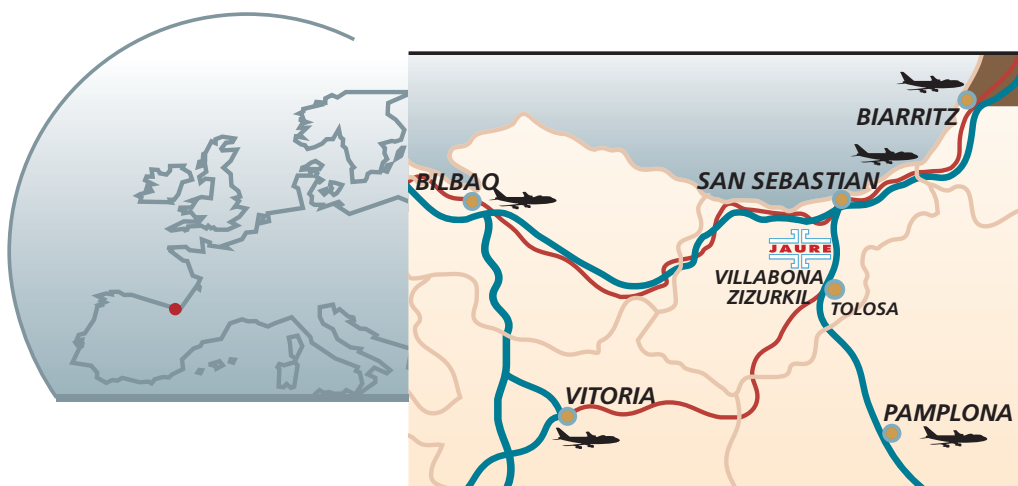
■ RECORD Flexible Spring Coupling.



■ JAUFLEX® Flexible elastic coupling.



■ Gear spindles for rolling mills.



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